

# Interstellar Molecules

Shading indicates an identification made by IR, Vis, or UV spectra.

Unshaded entries were detected by radio or microwave methods.

"?" indicates an uncertain or controversial detection.

Molecules in blue have been identified in the ice phase as well as the gas phase.

Molecules with Two Atoms			
H <sub>2</sub> hydrogen	CO carbon monoxide	CSi carbon monosilicide	CP carbon monophosphide
CS carbon monosulfide	NO nitric oxide	NS nitric sulfide	SO sulfur monoxide
HCl hydrogen chloride	NaCl sodium chloride	KCl potassium chloride	AlCl aluminum monochloride
AlF aluminum monofluoride	PN phosphorus mononitride	SiN silicon mononitride	SiO silicon monoxide
SiS silicon monosulfide	NH imidyl radical	OH hydroxyl radical	C <sub>2</sub> diatomic carbon
CN cyanide radical	HF hydrogen fluoride	FeO iron monoxide	LiH lithium hydride
CH methylidyne	CH <sup>+</sup>	CO <sup>+</sup>	SO <sup>+</sup>
SH mercapto radical	O <sub>2</sub> ? oxygen	N <sub>2</sub> nitrogen	

Molecules with Three Atoms			
H <sub>2</sub> O water	H <sub>2</sub> S hydrogen sulfide	HCN hydrogen cyanide	HNC hydrogen isocyanide
CO <sub>2</sub> carbon dioxide	SO <sub>2</sub> sulfur dioxide	MgCN magnesium cyanide	MgNC magnesium isocyanide
NaCN sodium cyanide	N <sub>2</sub> O nitrous oxide	NH <sub>2</sub> amidogen radical	OCS carbonyl sulfide
CH <sub>2</sub> methylene	HCO formyl radical	C <sub>3</sub> triatomic carbon	C <sub>2</sub> H ethynyl radical
C <sub>2</sub> O ketenylidene	C <sub>2</sub> S	AINC	HNO nitrosyl hydride
SiCN silicon monocyanide	N <sub>2</sub> H <sup>+</sup>	SiNC	c - SiC <sub>2</sub> silicon dicarbide
HCO <sup>+</sup> formyl cation	HOC <sup>+</sup>	HCS <sup>+</sup>	H <sub>3</sub> <sup>+</sup>
OCN <sup>-</sup> solid-phase only			

Molecules with Four Atoms			
NH <sub>3</sub> ammonia	H <sub>2</sub> CO (?) formaldehyde	H <sub>2</sub> CS thioformaldehyde	C <sub>2</sub> H <sub>2</sub> acetylene
HNCO isocyanic acid	HNCS thioisocyanic acid	H <sub>3</sub> O <sup>+</sup> hydronium ion	SiC <sub>3</sub>
C <sub>3</sub> S	H <sub>2</sub> CN	c - C <sub>3</sub> H	/ - C <sub>3</sub> H
HCCN	CH <sub>3</sub> methyl radical	C <sub>2</sub> CN cyanoethynyl radical	C <sub>3</sub> O
HCNH <sup>+</sup>	HOCO <sup>+</sup> protonated CO <sub>2</sub>		

Molecules with Five Atoms			
CH <sub>4</sub> methane	SiH <sub>4</sub> silane	CH <sub>2</sub> NH methyleneimine	NH <sub>2</sub> CN cyanamide
CH <sub>2</sub> CO ketene	HCOOH (?) formic acid	HCC-CN cyanoacetylene	HCC-NC isocyanoacetylene
c - C <sub>3</sub> H <sub>2</sub>	/ - C <sub>3</sub> H <sub>2</sub>	CH <sub>2</sub> CN cyanomethyl	H <sub>2</sub> COH <sup>+</sup> protonated formaldehyde
C <sub>4</sub> Si	C <sub>5</sub>	HNCCC	C <sub>4</sub> H

Molecules with Six Atoms			
CH <sub>3</sub> OH methanol	CH <sub>3</sub> SH methanethiol	C <sub>2</sub> H <sub>4</sub> ethylene	H(CC) <sub>2</sub> H diacetylene
CH <sub>3</sub> CN methylcyanide	CH <sub>3</sub> NC methylisocyanide	HC(O)NH <sub>2</sub> formamide	HCC-C(O)H propynal
HC <sub>3</sub> NH <sup>+</sup> protonated cyanoacetylene	HC <sub>4</sub> N cyanopropenylidene	C <sub>5</sub> N	C <sub>5</sub> H
H <sub>2</sub> CCCC butatrienyliidene			

Molecules with Seven Atoms			
CH <sub>2</sub> CH(OH) vinyl alcohol	c - C <sub>2</sub> H <sub>4</sub> O ethylene oxide	HC(O)CH <sub>3</sub> acetaldehyde	H <sub>3</sub> C-CC-H methylacetylene
CH <sub>3</sub> NH <sub>2</sub> methylamine	CH <sub>2</sub> CH(CN) acrylonitrile	HCC-CC-CN cyanobutadiyne	C <sub>6</sub> H hexatriynyl radical

Molecules with Eight Atoms		
CH <sub>3</sub> COOH acetic acid	HC(O)OCH <sub>3</sub> methyl formate	HOCH <sub>2</sub> C(O)H glycolaldehyde
H <sub>3</sub> C-CC-CN cyanomethylacetylene	H <sub>2</sub> C <sub>6</sub> hexapentaenyliidene	H(CC) <sub>3</sub> H triacetylene
H <sub>2</sub> C=CH-C(O)H propenal		C <sub>7</sub> H

Molecules with Nine Atoms			Molecules with Ten Atoms	
(CH <sub>3</sub> ) <sub>2</sub> O dimethyl ether	CH <sub>3</sub> CH <sub>2</sub> CN ethylcyanide	CH <sub>3</sub> CH <sub>2</sub> OH ethanol	(CH <sub>3</sub> ) <sub>2</sub> CO acetone	HOCH <sub>2</sub> CH <sub>2</sub> OH ethylene glycol
CH <sub>3</sub> C <sub>4</sub> H methylbutadiyne	HCC-CC-CC-CN cyanohexatriyne	C <sub>8</sub> H	H <sub>3</sub> C-CH <sub>2</sub> -C(O)H propanal	CH <sub>3</sub> (CC) <sub>2</sub> CN methylcyanoacetylene

Molecules with Eleven Atoms
HCC-CC-CC-CC-CN cyanoctatetrayne

Molecules with Twelve Atoms
C <sub>6</sub> H <sub>6</sub> benzene

Molecules with Thirteen Atoms
HCC-CC-CC-CC-CN cyanodecapentayne